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Powdery Mildew caused *by Golovinomyces cichoracearum* on Eastern Purple Coneflower (*Echinacea purpurea*) in Italy.

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Eastern purple coneflower (*Echinacea purpurea*) is a herbaceous plant grown as ornamental and for its medicinal properties. During the summer 2017 and the following autumn, 6-8-months-old potted plants of *E. purpurea* grown in a private garden located in Biella province (northern Italy, showed symptoms and signs of a previously unknown powdery mildew. A white mycelium covered stems, leaves and inflorescences of all plants. The ligules were particularly affected and dried. Mycelium produced erect conidiophores, with a cylindrical foot cell measuring 81-129 × 11-13 (mean 111 × 12) µm, followed by 3 shorter cells measuring 13-37 × 10-17 (mean: 24 × 13) µm. Elliptical conidia were collected in short chains and measured 30-42 × 16-24 (mean: 36 × 21) µm, length/width (l/w) ratio between 1.3 to 2.6 (mostly 1.5 - 2.0). Fibrosin bodies were absent. The teleomorph was not observed. DNA was extracted from mycelium, conidiophores and conidia collected from leaves and ligules of affected plants using the E.Z.N.A. Fungal DNA Mini Kit (Omega Bio-Tek, Darmstadt, Germany). A PCR reaction was performed using primers ITS1 (White et al. 1990) and PM6 (Takamatsu and Kano 2001), to amplify the Internal Transcribed Spacer (ITS) region of rDNA. Blastn analysis of 498 bp sequence (Gene Bank accession number MG182430) showed a 99% similarity with *Golovinomyces cichoracearum*, *G. spadiceus* and *G. ambrosiae*. Because conidium size observed on *E. purpurea* (in particular: width > 20 µm and l/w ratio) are more similar to *G. cichoracearum* (Braun and Cook 2012), the causal agent of powdery mildew detected on this host was identified as *G. cichoracearum*. To confirm the pathogenicity, three 8-months-old plants of *E. purpurea* were artificially inoculated by gently pressing mycelium, conidiophores and conidia of affected leaves onto healthy leaves. Three non-inoculated plants served as controls. All the plants were kept at temperatures ranging between 15 and 25°C. About 15 days after the artificial inoculation, the first symptoms of powdery mildew appeared on inoculated leaves on which morphological characteristics of the pathogen were identical to those reported above. Any symptoms appeared on controls. *Erysiphe* (Syn.: *Golovinomyces*) *cichoracearum* was reported on *E. purpurea* in Canada (Sholberg and Ginns 1999) and in Poland. To our knowledge, this is the first report of *G. cichoracearum* on *E. purpurea* in Italy. The economic importance of the disease described on *E. purpurea* is at present limited, but it could spread to several hosts belonging to the Compositae on which *G. cichoracearum* has been reported (Braun and Cook 2012).

References

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